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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,874	03/18/2004	Hideo Matsunaga	Q80281	5453
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WASHINGTON, DC 20037-3213				
			ART UNIT	PAPER NUMBER
			3711	
			MAIL DATE	DELIVERY MODE
			11/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/802,874

Applicant(s)

MATSUNAGA ET AL.

Examiner

Sebastiano Passaniti

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on see detailed Office action.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/17/07; 10/19/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office action is responsive to communication received 09/17/2007 – Request for Continued Examination (RCE); IDS; 09/18/2007 – Foreign art made of record; 10/19/2007 – IDS.

Claims 1-15 remain pending.

Following is an action on the MERITS:

As a substantial portion of a previous Office action is repeated below and in an effort to assist the applicant in identifying that portion of the current rejections which is newly presented, bolded regular font wording has been used to identify language newly added to the body of the 35 U.S.C. §103 rejection, below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya (U.S. Patent No. 5,346,217) in view of Motomiya (U.S. Patent 4,438,931), Hoshi (U.S. Patent No. 5,205,560), Tsuchida (U.S. Patent No. 5,255,913), Kusumoto (U.S. Patent 6,634,958), Murphy (U.S. Patent No. 6,332,847), **Dekura (U.S. Patent No. 5,538,246) and Imai (U.S. Patent No. 6,056,649)**. Note that each of Kusumoto and Murphy were filed prior to applicant's earliest effective filing date. The patent to Tsuchiya shows every feature claimed with the exception of a crown and side portion

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each having a Young's modulus lower than the face and sole portions, a rib on the sole portion and the specific claimed Young's modulus values. More specifically, Tsuchiya fails to disclose that the crown and at least part of the side portion are collectively press-molded together while the face and sole are molded separately therefrom. Instead, Tsuchiya shows that the club head pieces are of substantially the same material, while the thickness of selective pieces, notably the crown, is thinned in order to provide added repulsion force to a struck ball, thereby resulting in a longer flying distance (see the abstract in Tsuchiya). Specific to claims 2 and 8, Motomiya shows it to be old in the art to fabricate a hollow club head using plural shell pieces, one of which incorporates the top or crown section along with a portion of the sides of the shell. The remaining diverse shell pieces define a face portion and a sole portion. See Figure 5 in Motomiya. The embodiment in Figure 5 of Motomiya is but one of several arrangements for the preparation of the shell pieces, with the further embodiments in Figures 2-4 detailing alternative designs for fabricating the distinct shell components. Tsuchiya likewise displays a plethora of club head shell combinations, which are assembled to form a hollow shell. See Figures 8A-8C in Tsuchiya. In view of the patent to Anderson, it would have been obvious to modify the device in the cited art reference to Tsuchiya by forming the crown and at least a part of the side portion together, with the remaining portions (i.e., sole and face) formed separately and subsequently joining all of these pieces to come up with a complete hollow club head, the motivation being to simply provide another convenient manner in which to join the club head pieces. Specific to claims 6 and 12, note that Motomiya further obviates the use of a rib (215), a part of

which extends along the sole for reinforcement purposes. In view of this further teaching by Motomiya, it would have been obvious to modify the Tsuchiya device by providing a rib along the sole, the motivation being to enhance the strength of the hollow shell adjacent the sole. Tsuchida is cited to show that it is old in the art to provide a golf club head with a top portion that exhibits a lower modulus than the remainder of the shell. More specifically, the crown portion (5) is made of a first material with a modulus of 210 GPA, while the remainder of the shell is made of a material having a modulus of between 150-250 GPA (col. 6, lines 44-57). Although Tsuchida is mainly concerned with a club head in which the center includes a core material (12), a similar arrangement showing the flexibility of the crown is evidenced in a club head having a hollow interior, such being the case with the further teaching to Hoshi. Specifically, Hoshi shows a club head in which the crown portion (14b) is made of a material in the which the Young's modulus differs from the modulus of at least the sole portion (col. 6, lines 4-16). In a manner similar to Tsuchida, the crown in the Hoshi device is allowed to flex during impact of the clubface with a ball so that the flight distance of the ball is increased and the sweet spot area of the clubface is enlarged to better enhance the directional stability of a struck ball. See col. 1, lines 35-45 in Hoshi and col. 6, lines 18-29 in Tsuchida. All of Tsuchiya, Hoshi and Tsuchida are concerned with enhancing the repulsion characteristics of the face for increasing the flying distance of a struck golf ball. Thus, in view of the patents to Hoshi and Tsuchida, it would have been obvious to modify the device in the Tsuchiya device by fabricating the crown portion from a material that is diverse from the material of the remaining shell members, the motivation being to

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provide another means for increasing the flexure of the crown on impact of a golf ball with the clubface, the flexure creating improved flight of the struck ball. Specific to claims 3 and 9, Tsuchiya shows a crown having a thickness between 0.6 and 3mm (col. 10, lines 10-14). Specific to claims 4, 5, 10 and 11, while Tsuchiya does not disclose the specific values for Young's modulus, it is clear from a reading of the entirety of the prior art documents cited that the selection of a material or combination of materials to take advantage of the known properties of said material(s) would have been obvious to one having ordinary skill in the art. In addition, the obviousness in the selection of a known material has been established under the Patent statutes. See *In re Hopkins*, 145 USPQ 140. Moreover, the patent to Hoshi details that the construction of the club head, particularly the thickness of the shell pieces, is carried out with a consideration of the Young's modulus of the material selected for the head (col. 2, lines 56-65). In Hoshi, a distinct relationship has been acknowledged among the desired Young's modulus, the thickness of the crown and the material chosen. Since the applicant has not invented the claimed materials having the claimed Young's modulus values and since the applicant has merely selected materials exhibiting a Young's modulus that is optimally compatible with the particular thickness of the shell, the specific claimed values are not deemed critical. **As to claims 13, 14 and 15 and regarding the thickness requirements of the various shell segments of the head, i.e., the sole, crown, side and/or face portions, note column 4, lines 48-56 along with Figures 1, 5 and 6 in the primary Tsuchiya reference. As for the claimed material alloy requirement of claim 14, note column 9, line 11 through column 10, line 2 in Tsuchiya, wherein it**

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is clear that Tsuchiya discloses or comprises at least the claimed elements.

Specific to the press-molding limitation of claim 15, this limitation would not appear to bear much patentable weight in this structure claim. Nonetheless, even if the press-molding limitation is considered, it is clear that the skilled artisan would have known about the various methods employed at the time of the invention, which may be used to fabricate a hollow metal club head based upon the material used for the shell, the availability of manufacturing machinery and the cost considerations in making the head. As for the specific limitation in claims 1, 7, 13, 14 and 15, "and an intersection angle between the crown portion and the side portion is larger than 90 degrees", reference is made to the cited references to Kusumoto and Murphy, which show it to be old in the art to fashion a wood style club head with an intersection between the crown and a side portion. See Figures 6A, 6B and 6C in Kusumoto as well as Figure 5 in Murphy. Reference is also made to the newly cited references to Dekura and Imai. See Figure 1 at the toe side-crown interface and Figure 1 in Imai, again at the toe side-crown interface. While the references do not provide any specific reason for the 90 degree arrangement, one may safely conclude that such only represents an obvious design variation over prior art wood type club heads, given the enormous variance in club head design available in the art. The combined teachings of four references, namely Murphy, Kusumoto, Dekura and Imai clearly and unequivocally set forth to one of ordinary skill in the art that the specific feature of a larger than 90 degree intersection between the crown and side portions is so well known in the art as having been repeatedly

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shown to be used as part of hollow metal club heads, that the use of this feature as part of another hollow metal club head design would have without question been obvious at the time of the invention. Moreover, the claimed configuration is not deemed critical as the applicant has provided no reasoning whatsoever for the orientation between the crown and side portions **and its importance to the finished structural arrangement of the head.** The fact remains that the prior art teachings clearly obviate the inclusion of the claimed larger than 90-degree angle within a hollow metal club head design.

Claim Objections

Claim 15 is objected to because of the following informalities: In line 9, before "thickness", the term --a-- should be inserted and "are" should be changed to --is--. Appropriate correction is required.

Further References of Interest

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Se Figures 4 and 5 in Kouno. Note Figures 2-6 in Tseng. Observe Figure 2 in Honma. See Figure 1 in Aizawa. Note Figure 1 in Dekura ('246). Note Figure 1 in Yamada.

Response to Arguments

In the arguments received 09/17/2007, the applicant substantially narrows the focus of his arguments to a discussion of the prior art references to Kusumoto and Murphy, arguing that these prior art teachings do not provide any design benefits for incorporation into the Tsuchiya patent and further argues that a *prime facie* case of

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obviousness has not been established. The applicant contends that no motivation is present in the teaching references for providing the primary Tsuchiya device with an intersection angle between the crown portion and the side portion of larger than 90 degrees.

In response to these arguments, it is noted that no mention or reasoning whatsoever has been provided by the applicant in his remarks for explaining why the requirement that an intersection angle of larger than 90 degrees exist between the crown portion and the side portion is so important. Of what significance is the "larger than 90 degrees requirement" insofar as the resulting claimed product, i.e., the finished club head product? Here, all prior art related to golf club head construction, including prior art that appears to show only a design feature, is deemed relevant to a determination of obviousness. Inasmuch as the Murphy and Kusumoto prior art devices do not specifically detail any design benefits regarding the curved crown portion and the inclusion of a greater than 90 degree intersection between the crown the side portions of the head, it is clear that this feature nevertheless exists in the arsenal of the skilled club maker when taking into account diverse features that are to be part of an invention golf club. As further pointed out by the current rejection, supra, other prior art teachings such as the prior art to Imai and Dekura also show that a greater than 90 degree intersection between the crown the side portions of the head is well known in the club head art. The prevalence in the art of this claimed feature has been exhaustively depicted in the current Office action. It is clear that the skilled artisan would therefore have been motivated to provide a more curved appearance to the Tsuchiya device, if

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simply only for aesthetic purposes. Given that the applicant has not argued why the greater than 90 degree intersection is new, useful or unobvious in the current product claims, it is clear that one of ordinary skill in the art would not even have to consider what the purpose of this feature is in any of the Kusumoto, Murphy, Dekura and Imai references. All that is required is that 1) the feature be shown to be old in the art, which these secondary teachings clearly offer, and 2) to provide an appropriate explanation as to why the inclusion of this feature would have been rendered obvious at the time of the invention, which the Office action clearly sets forth in a motivational statement.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sebastiano Passaniti whose telephone number is 571-272-4413. The examiner can normally be reached on Monday through Friday (6:30AM - 3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eugene L. Kim can be reached on 571-272-4463. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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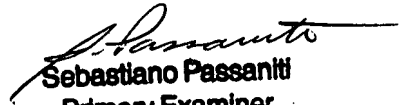
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S.Passaniti/sp
November 11, 2007


Sebastiano Passaniti
Primary Examiner